university of toronto
computing services

UTCS ComputerNews

P84-0304 (09)
REC'D
ARCHIVES
11 JN 84
FROM UTC
U32-1

Articles

Let's Talk About It: Brave New World in 1984 1
Revised UTCS Rates 2
SHARE 13
Advising Service TC Analysis 16
Online Documentation 18
New DECsystem-10 Help: HELP PRODUCT 20
New Online Help for Support Classes 20
A Few Hints to Improve Throughput 21
The Census Tape Project 21
SAS 82.4 Now Available 22
EISPACK 23
Microcomputer News 23
File Transfer Service in Production 24
PL/I Release 4.0 at UTCS 25
MASSCOMP Computer System 25
Hours of Service 26

Departments

UTCS Noncredit Short Courses 27
Change Committee 27
New UTCS Documents 28
Personnel Changes 28
Recent Acquisitions in the Computer Library 29
Consulting and Enquiries 31
UTCS Directory 31
Committees on Computing 31
UTCS Terminal and Advising Sites 32
UTCS Systems 33

ISSN 0315-4661 **May/June 1984** **No. 215**

Publisher

University of Toronto
Computing Services
Toronto, Ontario
Canada M5S 1A1

Editor: Martha Parrott

Publications Assistant: E. Weitmann

Publication Date: June 1, 1984.

Subscriptions

Subscriptions run for one year, beginning each January. Changes should be entered on the tear-out form at the back of this issue, and mailed to *COMPUTERNEWS,* Engineering Annex, Room 206 (or phone 416-978-4990).

COMPUTERNEWS is published 8 times yearly by University of Toronto Computing Services. Enquiries or contributions should be directed to:

The Editor
COMPUTERNEWS
11 King's College Road, Room 207
University of Toronto
Toronto, Ontario
Canada M5S 1A1

Permission is granted to reprint articles from *COMPUTERNEWS* for noncommercial purposes provided the author, publication and issue are acknowledged.

Let's Talk About It: Brave New World in 1984?

Well, gentle reader, here is another article with a provocative title, based on you and UTCS moving into a completely new mode of operation and relationship this new fiscal year. As you must have heard by now, the former entitlement funds have been changed to real money (spendable only on computing, however) and disbursed to divisions and departments. The actual amounts have been decreased, though they will still purchase the same average amount of computing at UTCS. We have completed our costing project and have set new rates. In this article I will lead you through the whole process, clarify a few of the issues and show you how things are reviewed and approved (just so you will not think we are doing all this unilaterally).

There has been a policy approved by Governing Council for a couple of years which required that funny money entitlement funds be fully monetized by the 84/85 fiscal year. I will not dig into the whys and wherefores of the policy (which was set before my time). We have taken this policy and deadline as our marching orders and have proceeded, with much help and consultation from Professor Nowlan, the Board and the various computing committees, to get it in place for May 1, 1984.

The process, which has been going on for the past year, had a number of steps along the way. First, a generic costing study was undertaken by consultants from Woods Gordon. Then we did a rather detailed costing study ourselves. We used the results to determine sources of funding and to determine the total amount of money to be disbursed as newly monetized (formerly entitlement) funds.

We also changed nearly all our rates in line with the actual costs incurred to provide our services. I should emphasize that most of our old rates bore no particular relation to costs but were merely anachronisms, based in the dim past.

The Woods Gordon Study resulted in a set of services at a level of granularity too fine for us to use in the first year of monetization, though we may implement some of the recommendations next year. These might eventually result in surcharges for the use of certain packages, but certainly not this year. In any case, if and when we transfer more centrally funded costs to usage funded (user paid) services, you should be getting the money to pay most additional charges.

Our costing study had a number of required boundry or continuity conditions. First, we had to be able to assign to a service everything we do, supply, or let users do. We had to be able to assign all our costs completely to these services. Finally, we had to be able to recover the costs of all those services by funding from some source.

We came up with a list of services ranging from application support to the 3033/N12 machine service. These are funded either centrally, as divisional lump sum charges, or by what we call usage charges. The initial list of services and their funding categories was presented to our Board and modified in line with their recommendations.

Centrally funded services included such things as public sites, central advising and application (such as SAS, APL) support. The lump sum category included dedicated (to a single user) communications connections and facilities management arrangements. The usage funded services (the things you paid entitlement funds for) are the 3033/N12, DECsystem-10, the DEC PDP-11/70 (for a few months) and a new UNIX VAX service (to take non-Statistics users off the 11/70).

The monetization process was never conceived as one which injected new real funds into computing at the University. There-

continued...

Let's Talk About It continued

fore, the amount of money available to disburse could only be the remaining cost of UTCS after all other forms of funding had been taken into account. This is a point which needs a bit of pondering, particularly when you realize your former entitlements have shrunk dramatically. The old entitlements paid for computing charged at rates which were not based on cost at all, and disbursing their full amount would have required that we continue with a set of rates which bore no relation to cost. Since a prime requirement of the policy was to allow decentralized computing decisions based on valid cost signals, a simple "one real for one funny dollar" trade would not have worked at all.

So far in the process, we had identified services costs, source of funding and the total amounts for funding, and we and the Board agreed that the conversion to real money must contain a well determined conversion factor less than one. Now we need to consider how this whole process translated into changes in the rates we charge.

This process was a little complicated, but effectively we had to cover the remaining cost of the usage funded services (after commercial and external income was subtracted) by the research income target and the required monetized entitlement income necessary to give a net zero cost. Based on projected usage at the old rates, the new rates on the average would have to decrease to about 67% of their previous level. This all sounds fairly straightforward (I hope), but there is one very worrisome wrinkle in the piece. Since projected research income did not shrink but monetized entitlements did, and since we based the new rates on the total, the real research dollar would buy more computing than before, but the total of newly monetized entitlement money would buy only 85% as much as before.

This problem gave the Board and us a lot of headaches, particularly in trying to arrive at a principle or algorithm that could be applied in allocating the new money. Luckily, we had some degree of flexibility in reducing our costs, and we used it to simply keep the new rates based on the process outlined above and put more real money in the pot. Thus, on the average, the new money should buy the same amount of computing at UTCS as last year. There are undoubtedly many divisions or departments who are not average and who will run into anomalies, but it was not possible to allocate in such a way as to resolve all of these and still get everything done for May 1.

In these ramblings, I have tried to give you some sense of the process and issues that we faced. I would ask your indulgence over the next year as the new system irons itself out. I think in the long haul it will work to the advantage of us all. Finally, in self-defense, I must add that we (UTCS) did not determine your specific allocations, only what the total amount should be!

In the following article, the new rates are discussed and listed in some detail.

Warren Jackson

Revised UTCS Rates

In accordance with the University's Computing Policy requirement that computing entitlements be "monetized" into real dollars, spendable on computing anywhere, UTCS is revising the rate schedules for its services. The rates are consistent with the amount of money being distributed. Most of these rates, and the costs on which they are based, have been reviewed and approved by the UTCS Board. The new Rate Schedule and tables comparing new and old rates for the IBM 3033/N12, DECsystem-10 and DEC PDP-11/70 follow this article.

continued...

Revised UTCS Rates continued

In general, the rates have been adjusted to reflect the costs of providing the service, and, based on estimates of usage, to recover their costs. The multiplicative factors applied to rates for External and Commercial users have been adjusted to keep their charges the same as before the rate change.

Charges for services which are based on newer technology and machines generally went down. The charges for more labour intensive services and those based on old machines generally increased.

Charges will now be levied for all dedicated communication access to our facilities, that is, access which is not available to others if the user is not using it. Examples are 327X terminals "hardwired" to the NCP 3705 and terminals "hardwired" to the PACX. Based on the present configuration of the NCP 3705, synchronous port charges will be $2,000 per annum for speeds up to 9600 bps. In the past, these charges varied from $2,200 to $4,400 annually.

Hardwired asynchronous connections to the PACX, which had not been charged previously, will now incur an annual fee of $60 per port to cover the hardware and staff associated with maintaining this service.

Since entitlements are now as real as other money, UTCS will charge all services against a Customer Account Number (CAN), instead of either charging a CAN or issuing a Debit Memo, as in the past.

Grant funds and funds allocated by a department for research subsidy will no longer be automatically blended into the researcher's Blanket Purchase Order Account (BPOA). Departments must control the ratio of subsidy allocation for grants by issuing a separate Blanket Order (Encumbrance Memo) for each research BPOA being subsidized. UTCS will bill charges at month end to each Grant and Subsidy Blanket Order in the same proportion as the balance on each.

Subsequent changes in ratios, therefore, may be controlled by increases/decreases to these Blanket Orders.

While UTCS will no longer participate in "special deals" with user departments, we are considering the possibility of consistent "quantity discounts" for departments which are willing to commit to a particular level and mode of usage and pay in advance.

The charges for services based on the IBM 3033/N12 generally have gone down. Connect and CPU charges have decreased, the charge for memory has been abolished, and an I/O use charge has been added to WYLBUR, putting it and TSO on an equal footing. Online disk storage charges have been reduced to reflect the new IBM 3380 technology. APL connect and CPU charges have also dropped in the same proportion as the other services. The charges for printing output, reading cards, and tape handling, however, have increased to reflect the older technology and labour intensiveness of these services.

With the elimination of the memory charge, Class C is no longer meaningful and has been eliminated. To compensate, the minimum charge for Class E is abolished, but the CPU factor is changed from 4.4% to 6%. Also, the old priority 4 service factor is eliminated. Priority 8 is temporarily retained, pending a restructuring of job Classes. We will try to provide a means whereby "express" service can be attained, if the user is willing to pay express rates. In the meantime, use of HSJS will be centrally funded, but limited to existing instructional users.

In the past, some departments that ran Remote Job Entry (RJE) stations and provided their own paper supplies received a "Unit Record Rebate" to compensate them for a portion of the printing cost charged them. Now there will be no charge levied for printing at a user's own site, when his department provides the paper. UTCS will investigate ways of providing the departmental representative responsible for such a site with tools to monitor paper consumption by his users.

continued...

Revised UTCS Rates continued

The Gould and Calcomp plotters were not recovering the costs of their maintenance and supplies, let alone their operation. This has forced their rates to double.

The off-prime discount on the IBM 3033/N12 has decreased from 40% to 33%. We will attempt to implement special forms charging at the SAC level by the end of June.

The DECsystem-10 represents old technology that is becoming increasingly more expensive to maintain. In recognition of this fact, and of the attempt to recover component costs through charges, the rates for CPU have increased marginally; online disk storage has increased more dramatically.

Generally, the aggregate change of rates across the IBM 3033/N12 and DECsystem-10, weighted by usage, has decreased to 67% of the old rates. Globally, the amount of monetized entitlements should be able to buy the same amount of UTCS computing as before, while research hard dollars will buy considerably more than before.

Later this summer, the DEC PDP-11/70 UNIX and typesetting service will be replaced by a VAX-11/750 running UNIX. The present rates for CPU, connect and disk storage will be maintained until the new service is operational. The charges for printing and tape handling, however, increase as with the other systems. Similarly, the CAT phototypesetter, VARIAN typesetting simulator and LOG/E photoprocessor have not even recovered their maintenance and supplies costs. The charges for these services are also doubled.

The new UNIX VAX will allow some users to migrate off the old expensive DECsystem-10.

These rate changes were intended to apply from the beginning of the new fiscal year, May 1, but since some systems require massive alterations, the new rates were implemented on the IBM 3033/N12 on the evening of April 29, and took effect Monday, April 30.

Warren Jackson

UNIVERSITY OF TORONTO COMPUTING SERVICES INTERNAL RATE SCHEDULE

Effective May 1, 1984 (UTCS reserves the right to change rates without notice)

IBM 3033/N12 Processor

SERVICE	DEFINITION	CHARGES
BATCH SERVICE	General Purpose Job Stream (GPJS)	
Charging Algorithm	SF x (CPU + IOUSE + URC + PDC)	
SF [1]	Service Factor is 2 for Priority 8; 1 for Priority 6 (default).[1]	
CPU	Charge for use of the central processing unit (CPU)	$16.00/CPU minute
IOUSE [2]	Charge for Input-Output (IO) usage	$ 0.35/1000 IOUSE [2]
URC	Unit Record Charge	$ 5.00/1000 cards read $ 2.00/1000 lines printed + $10.00/1000 cards punched
PDC	Peripheral Device Charge. See Appendix A for available paper forms	$ 2.00/tape mount + $ 3.25/printer (forms mount)
	[1] A customer's choice of Priority affects job turnaround. Priority 6 jobs (Service Factor 1) generally execute after Priority 8 jobs (Service Factor 2).	
	[2] IOUSE = Disk EXCPs + Tape EXCPs + VIO Pages EXCP is the transfer of one block of data between memory and disk or tape. EXCP is an acronym for Execute Channel Program. VIO Pages = VIOPAGEIN + VIO PAGEOUT + VIO RECLAIM VIO PAGEIN is the transfer of one page (4096 bytes) of data from disk to memory. VIO PAGEOUT is the reverse. VIO RECLAIM is the re-assignment of a page which was scheduled for page out. This figure is necessary to ensure that the total VIO page count is reproducible.	
CLASS E	Class E is a batch service designed for programs which require substantial machine resources and do considerable number crunching. Class E jobs generally do not start execution before midnight and overnight turnaround is not guaranteed.	
Charging Algorithm	(0.06 x CPU) + (IOUSE + URC + PDC)	
	NOTE: CPU, IOUSE, URC and PDC have the same meanings and charges as in the Batch service. Further details on Class E can be found in the UTCS Guide to GPJS.	
Interactive Services		
TSO	Time Sharing Option	
Session Charge	CPU + IOUSE + CTC	
CTC	Connect Time Charge	$ 1.50/hour (prime time) [3] $ 1.00/hour (otherwise)
	NOTE: For the TSO service, CPU and IOUSE have the same meanings and charges as in the Batch Service.	
WYLBUR		
Session Charge	CPU +IOUSE + CTC	
CTC	Connect Time Charge	$ 1.50/hour (prime time) [3] $ 1.00/hour (otherwise)
	NOTE: For the WYLBUR service CPU and IOUSE have the same meaning and charges as in the Batch Service.	

SERVICE	DEFINITION	CHARGES

IBM 3033/N12 Processor

SERVICE	DEFINITION	CHARGES
Interactive Services	(Continued)	
I.P. SHARP APL	The I.P. SHARP version of APL.	
Session Charge	CPU + CTC	
CPU	Charge for the use of the central processing unit in CPU Units.[3]	$ 2.22/1000 (prime time)[4] $ 1.48/1000 (otherwise)
CTC	Connect Time Charge	$ 1.50/hour (prime time)[4] $ 1.00/hour (otherwise)
FILEPRINT/HSPRINT	Printing generated via the APL utilities FILEPRINT or HSPRINT	$ 2.00/1000 lines printed
Dump/Restore	A customer requested workspace/file dump/restore from tape	$20.00/request

NOTE: N tasks and B tasks are not charged for Connect Time.

[3] A CPU Unit is approximately 0.004 CPU seconds on the IBM 3033/N12 processor.

[4] Prime Time is Monday to Friday from 08:00 to 19:00 hours excluding holidays. **The highest rate applicable during any part of a session will be the rate used to charge for the entire session.** Nonprime time rates are two-thirds of prime time.

OTHER CHARGES

SERVICE	DEFINITION	CHARGES
Online Storage	One track consists of 47476 bytes	$ 0.020/track/day
I.P. Sharp APL Online Storage	One block of **workspace** storage (4196 bytes) One block of **file** storage (3156 bytes)	$ 0.00173/block/day $ 0.00138/block/day
Offline Storage	Customer supplied tape (one month minimum charge) UTCS rented tape (one month minimum charge)	$ 2.00/tape/month $ 2.50/tape/month

COMMUNICATIONS SERVICES

SERVICE	DEFINITION	CHARGES
Dedicated Synchronous Access	Dedicated RJE port at 9600 bps or less	$2000/year.
Dial-in Synchronous Access	Connect time charge	$13.00/hour

NOTE: Dial-in RJE port facilities are provided at 2400 bps only.

SERVICE	DEFINITION	CHARGES
Dedicated Asynchronous Access	Dedicated PACX port up to 9600[5] bps	$60.00/year

[5] The maximum supported speed varies with the machine being accessed. Once a connection is established to one of the UTCS mainframes, the user is charged the rates quoted in this schedule for resources consumed.

NOTE: Customers who wish to connect their own systems or terminals to UTCS computers should contact UTCS Hardware and Communications staff to discuss hardware and/or software requirements.

UNIVERSITY OF TORONTO COMPUTING SERVICES INTERNAL RATE SCHEDULE

Effective May 1, 1984 (UTCS reserves the right to change rates without notice)

DECsystem-1090

Session Charges

SERVICE	DEFINITION	CHARGES
Charging Algorithm	CPU + MEMUSE + IOUSE + CTC	
CPU	Charge for the use of the central processing unit (CPU)	\$ 5.00/CPU-min (prime time) [1] \$ 3.00/CPU-min (otherwise)
MEM	Memory usage measured in kiloword, CPU minutes (kw-min)	\$ 0.15/kw-min (prime time) [1] \$ 0.09/kw-min (otherwise)
IOUSE	Disk input-output. One block is 128, 36-bit words (640 characters)	\$ 0.50/1000 blocks (prime time) [1] \$ 0.30/1000 blocks (otherwise)
CTC	Connect Time Charge	\$ 2.00/hour (prime time) [1] \$ 1.20/hour (otherwise)

[1] Prime Time is Monday to Friday from 08:00 to 19:00 hours excluding holidays. **The highest rate applicable during any part of a session will be the rate used to charge for the entire session.** Nonprime time rates are 60% of prime time.

Non-session Charges

SERVICE	DEFINITION	CHARGES
Online Storage	Online disk space. One block is 128, 36-bit words (640 characters)	\$ 1.00/1000 blocks/day
Offline Storage	Customer supplied tape (one month minimum charge)	\$ 2.00/tape/month
	UTCS rented tape (one month minimum charge)	\$ 2.50/tape/month
URC	Unit Record Charge	\$ 3.00/1000 lines printed
PDC	Peripheral Device Charge. Use of DECsystem-1090 tape drive	\$ 2.00/tape mount + \$ 5.00/elapsed hour
IPRINT	DECsystem-1090 files sent to the IBM 3033/N12 with the IPRINT utility	\$ 2.00 x SF [2] /1000 lines + \$ 3.25/printer (forms mount [3])

[2] SF is the Service Factor for the job which generates the printing and is fixed by the priority chosen by the customer. Priority 6 jobs have a Service Factor of 1 while Priority 8 jobs have a Service Factor of 2. Priority 8 jobs generally execute before Priority 6 jobs but cost twice as much.

[3] See Appendix A for available paper forms.

PDP-11/70 Processor

Session Charge

SERVICE	DEFINITION	CHARGES
Charging Algorithm	CPUCTC	
CPUCTC	Combined central processing unit (CPU) and connect time charge (CTC)	\$ 5.00/hour (prime time) [4] \$ 3.00/hour (otherwise)

[4] Prime Time is Monday to Friday from 08:00 to 19:00 hours excluding holidays. **A session which spans rate periods will be prorated such that the portion in prime time will be charged prime time rates while the portion in nonprime time will be charged nonprime time rates.** Nonprime time rates are 60% of prime time.

Non-session Charges

SERVICE	DEFINITION	CHARGES
Online storage	One block consists of 512 characters	\$ 0.77/1000 blocks/day
Offline Storage	Customer supplied tape (one month minimum charge)	\$ 2.00/tape/month
	UTCS rented tape (one month minimum charge)	\$ 2.50/tape/month
Line Printer	Use of the line printer connected to the PDP-11/70	\$ 3.00/1000 lines
PDC	Peripheral Device Charge. Use of the PDP-11/70 tape drive	\$ 2.00/mount + \$ 5.00/elapsed hour

OTHER SERVICES

DATAPAC	Use of the DATAPAC facility	$12.00/connect hour

NOTE: Customers contemplating using DATAPAC into UTCS should contact a Marketing Representative for further details.

Mainframe File Transfer Facility	Connect time charge	$ 4.50/hour
Plotting	GOULD electrostatic plotter	($ 2.70 x SF [1])/metre
	CALCOMP 1051, 4-colour, pen plotter	($52.00 x SF [1])/plotter-hour [2] ($ 2.00 x SF [1])/metre [2]

[1] SF is the Service Factor for the job which generates the plot and is fixed by the priority chosen by the customer. Priority 6 jobs have a Service Factor of 1 while Priority 8 jobs have a Service Factor of 2. Priority 8 jobs generally execute before Priority 6 jobs but cost twice as much.

[2] This rate applies when the CALCOMP is mounted with the default pens and paper (form C112). Appendix B gives rates for other paper and pens.

NOTE: Output destined for plotting can be generated from several UTCS systems. However, because the Gould and CALCOMP plotters are attached to the IBM, customers must have an account on the IBM system.

Typesetting	Use of the C.A.T. phototypesetter	$ 0.60/inch
	Use of the Varian (electrostatic) typesetting simulator	$ 0.20/inch

NOTE: The C.A.T. phototypesetter and the Varian typesetting simulator are both attached to the PDP-11/70 Processor. Typesetting output generated on the DECSystem-1090 can be transferred to the PDP-11/70 for processing. DECSystem-1090 customers do not require an account on the PDP-11/70.

Other Services	Tape cleaning; a double pass (forward and reverse)	$ 2.00/tape
	Job Handling	$20.00/hour
	Bursting	$20.00/hour
	Collating	$20.00/hour
	Paper Drilling	$20.00/hour

TERMINAL RENTAL

UTCS has several types of terminals for rent. The rental charge includes maintenance and acoustic coupler. There are minor additional installation and communications costs for limited distance, high speed modems. More information on installation costs is available from a UTCS Marketing Representative. All terminals have a one month minimum rental charge. UTCS also charges for pick-up and delivery unless the user chooses to do it.

Video	Cybernex (APL100), DEC (VT100), Lanpar (XT100), Datamedia (Elite 1520)	$ 80/month
	Volker Craig (VC303, VC404), DEC (VT50, VT52), Soroc (IQ120)	$ 50/month
Hardcopy	Letter quality - Xerox (Diablo 1620, 1641) [3] , CDI (1030, 1050)	$125/month
	Dot matrix - Decwriter II (LA36)	$105/month

[3] Forms tractor attachment for these terminals is $10/month.

PUBLICATIONS

UTCS stocks a variety of manuals and other documentation which can be purchased by customers. Contact the UTCS Information Office for current prices.

APPENDIX A

Rates for Special Forms Paper

The rates for paper consumption at a UTCS special forms printer are given below. The first column gives the last two digits of the forms code. The second and third columns describe the form. All paper sizes are in inches and are in the format (length x width). The fourth column is the cost **per page**. Further information on UTCS forms codes can be found in USERBOOK Section 3.2. Customers who have special requirements (e.g., pre-printed forms or unusual forms control) should contact UTCS Operations.

Forms Code (last 2 digits)	**Description** size	type	**Price per Page**
00	11 x 15	1 part, lined	$0.010
01	11 x 15	1 part, blank	$0.010
02	11 x 15	2 part	$0.026
03	11 x 15	3 part	$0.039
04	11 x 15	4 part	$0.056
05	1 7/16 x 4	labels (1 across)	$0.006
06	15/16 x 3.5	labels (3 across)	$0.011
07	1 7/16 x 4	labels (3 across)	$0.017
08,09	11 x 8.5	1 part, lined	$0.007
10,11	11 x 8.5	2 part	$0.017
12	11 x 8.5	3 part	$0.024
14	11 x 8.5	4 part	$0.036
16 to 18	11 x 9.5	1 part, blank	$0.011
20 to 23	11 x 9.5	1 part, blank	$0.011
30,31	8.5 x 15	1 part	NA [1]
32	8.5 x 15	2 part	$0.021
33	8.5 x 15	3 part	$0.032
34	8.5 x 15	4 part	$0.045
35	8.5 x 15	1 part, blank	$0.008
Laser [2]	8.5 x 11	1 part	$0.07

[1] Not Applicable. Forms codes 30 and 31 request standard paper. In this case the page rate is zero, although the special forms mount charge is still applied.

[2] Output destined for laser xerographic output. The rate is per impression. Hence printing on both sides of a page would cost twice as much. The setup charge for this service is $5.00 per job.

APPENDIX B

CALCOMP 1051 Paper, Pens, and Rates

Papers and Pens (Forms)

The size and type of paper and the pens to be used are conveyed by means of form names. The form name, mwpi, is comprised of single letter or digit codes for the Machine type (m), Paper Width (w), Paper type (p) and Ink type (i) (see Table 1 below). The default form is C112. Details regarding the specification of forms can be found in the UTCS USERBOOK Section 3.8PLOTBASIC and 3.8PLOTBASIC SUBTEXT.

Where special paper and/or pens are required, special arrangements must be made with Operations before the jobs are submitted with the appropiate special form names (i.e. those with X's in them). The special papers and pens are supplied by the customer and extra charges for the manual handling of these jobs may be levied by Operations.

Charging Rates

A Calcomp plot will be charged by; 1) the elapsed time on the plotter, 2) the length of plot, 3) a setup charge for any request other than forms C111 and C112, and 4) the Service Factor of the job which produces the plot.

The rates are given in Table 2 below. The Service Factor affects the plotting cost. Priority 6 has a Service Factor of 1 (the default) while Priority 8 has a Service Factor of 2. Priority 8 jobs cost twice as much as Priority 6 jobs.

Table 1: Codes for Form Names

Machine type (m)	Paper Width (w)	Paper type (p)	Ink type (i)
C (Calcomp)	1 (11" wide) 2 (34" wide) X (special type)	1 (translucent) 2 (vellum) X (special type)	1 (pressurized ball) 2 (liquid ball)

Table 2: Calcomp 1051 Rates

Description [2]	Form [1] name	Paper charge ($/metre) [3]	Elapsed time ($/hour) [3]	Set up ($)
11" Trans. PB.	C111	1.00	40.00	NA
11" Trans. LB.	C112	1.00	52.00	NA
11" Vellum PB.	C121	2.00	40.00	3.25
11" Vellum LB.	C122	2.00	52.00	3.25
34" Trans. PB.	C211	2.00	40.00	3.25
34" Trans. LB.	C212	2.00	52.00	3.25
34" Vellum PB.	C221	4.00	40.00	3.25
34" Vellum LB.	C222	4.00	52.00	3.25
11" Trans. SPen.	C11X	1.00	52.00	3.25
11" Vellum SPen.	C12X	2.00	52.00	3.25
11" SPaper. SPen.	C1XX	NA	52.00	3.25
11" SPaper. PB.	C1X1	NA	40.00	3.25
11" SPaper. LB.	C1X2	NA	52.00	3.25
34" Trans. SPen.	C11X	2.00	52.00	3.25
34" Vellum SPen.	C12X	4.00	52.00	3.25
34" SPaper. SPen.	C1XX	NA	52.00	3.25
34" SPaper. PB.	C1X1	NA	40.00	3.25
34" SPaper. LB.	C1X2	NA	52.00	3.25

[1] C112 is the default.

[2] Trans. - Translucent Paper
PB. - Pressurized Ball point pens
LB. - Liquid Ball point pens
SPen. - Special customer-supplied pens
SPaper. - Special customer-supplied paper
NA - Not Applicable

[3] These rates are affected by the Service Factor (i.e., the Priority of the job that generates the plot). See explanatory notes in the above text.

New Rates

IBM 3033/N12

ITEM	UNIT	OLD RATE	NEW RATE
CPU	minute	$19.50	$16.00
Memory	100 k/block-min	$ 1.65	--
DISK I/O	1000 uses	$ 0.25	$ 0.35
TAPE I/O	1000 uses	$ 0.25	$ 0.35
VIO	1000 uses	$ 0.25	$ 0.35
TSO Connect (Prime)	hours	$ 3.75	$ 1.50
TSO Connect (Off-Prime)	hours	$ 2.25	$ 1.00
TSO Memuse	100 k/block-min	$ 1.65	--
TSO I/O use	1000 uses	$ 0.25	$ 0.35
WYLBUR Connect (Prime)	hours	$ 3.75	$ 1.50
WYLBUR Connect (Off-Prime)	hours	$ 2.25	$ 1.00
WYLBUR I/O use	1000 uses	--	$ 0.35
APL Connect (Prime)	hours	$ 3.75	$ 1.50
APL Connect (Off-Prime)	hours	$ 2.25	$ 1.00
APL CPU (Prime)	1000 CPU units	$ 2.70	$ 2.22
APL CPU (Off-Prime)	1000 CPU units	$ 1.62	$ 1.48
APL Dump/Restore	request	$10.00	$20.00
Online Storage (47,476 bytes/track)	track-day	$ 0.0492	$ 0.02
APL Workspace Storage (4196 bytes/block)	block-day	$ 0.00425	$ 0.00173
APL File Storage (3156 bytes/block)	block-day	$ 0.00340	$ 0.00138
Tape Mount	request	$ 1.10	$ 2.00
Tape Storage (user supplied tape)	month	$ 1.60	$ 2.00
Tape Rental (UTCS supplied tape)	month	$ 1.60	$ 2.50
Tape Cleaning	request	$ 1.60	$ 2.00
Cards Read	1000 cards	$ 1.40	$ 5.00
Cards Punched	1000 cards	$ 6.00	$10.00
Lines Printed	1000 lines	$ 1.40	$ 2.00
Mount Print Form	request	$ 3.25	$ 3.25

continued...

New Rates continued

IBM 3033/N12

Plot Gould	metre	$ 1.35	$ 2.70
Plot Calcomp C11	metre	$ 0.50	$ 1.00
Plot Calcomp C12	metre	$ 1.00	$ 2.00
Plot Calcomp C21	metre	$ 1.00	$ 2.00
Plot Calcomp C22	metre	$ 2.00	$ 4.00
Plot Calc Time Normal Pen	hour	$20.00	$40.00
Plot Calc Time Liquid Ball	hour	$26.00	$52.00
Mount Calcomp	request	$ 3.25	$ 3.25

- Prime time is 08:00 - 19:00, Off-Prime is outside 08:00 - 19:00.
- TSO, WYLBUR and APL session charges off-prime time are reduced by 33%.
- Service factor priority 4 - no longer available.
- Class C - no longer available.
- Class E minimum charge waived and CPU service factor changed from 4.4% to 6%.

DECsystem-1090

ITEM	UNIT	OLD RATE	NEW RATE
CPU	minute	$ 4.68*	$ 5.00*
Memory	kw-min	$ 0.15*	$ 0.15*
IOUSE	k/blocks	$ 0.50*	$ 0.50*
Connect	hours	$ 2.00*	$ 2.00*
Disk Storage (640 characters/block)	k/block-day	$ 0.75	$ 1.00
Tape Mount	request	$ 1.10	$ 2.00
Tape Usage	hour	$ 3.00	$ 5.00
Tape Storage (user supplied tape)	month	$ 1.60	$ 2.00
Tape Rental (UTCS supplied tape)	month	$ 1.60	$ 2.50
Tape Cleaning	request	$ 1.60	$ 2.00
DECsystem-10 Line Printer	1000 lines	$ 2.00	$ 3.00

* - Session charge item; 40% discount outside 08:00 - 19:00 hours.

DEC PDP-11/70

ITEM	UNIT	OLD RATE	NEW RATE
Connect & CPU	hour	$ 5.00*	$ 5.00*
Disk Storage (512 characters/block)	k/block-day	$ 0.77	$ 0.77
Tape Mount	request	$ 1.10	$ 2.00
Tape Usage	hour	$ 3.00	$ 5.00
Tape Storage (user supplied tape)	month	$ 1.60	$ 2.00
Tape Rental (UTCS supplied tape)	month	$ 1.60	$ 2.50
Tape Cleaning	request	$ 1.60	$ 2.00
11/70 Line Printer	1000 lines	$ 2.00	$ 3.00
CAT Typesetter	inch	$ 0.30	$ 0.60
Varian Typesetting Simulator	inch	$ 0.10	$ 0.20

* - Session charge item; 40% discount outside 08:00 - 19:00 hours.

SHARE

SHARE, the first organized user group in the computer industry, has over 1,500 member installations. One of the requirements of being a member installation is operation of a large IBM computer such as our IBM 370 architecture machines (the two System 3033s and the System 4341).

The last major meeting, SHARE62, was held in March. The University of Toronto was fortunate to be able send eight individuals to this meeting, including seven from UTCS. Together, they were able to cover over 100 separate sessions. This article will highlight some of these.

Applications

VS FORTRAN level 1.3.1 is now available. This release incorporates all fixes to known problems from level 1.3.0. UTCS is currently running level 1.1.1 but expects to go to level 1.3.1. Users should welcome the many new debugging features and improved diagnostics. If there is sufficient interest, UTCS may provide a seminar on how to use some of these new VS FORTRAN features.

IBM announced a new product, the High Accuracy Arithmetic Routines, a set of subroutines which solves various polynomial and eigenvalue problems. With this new tool, the burden of numerical error analysis and data range scaling are removed from the user. Computational errors due to data conversions, uncontrolled rounding errors and mutual cancellation of large values during execution are all taken care of. The solutions from these subroutines have guaranteed precision. Unfortunately, these VS FORTRAN routines were written so as to be dependent on IBM's VM/SP Operating System and hence could not be run on our Academic IBM. IBM representatives did not know when, or if, these routines would be supported in a MVS environment.

One session, given by an IBM representative from their Santa Teresa Laboratory, covered details of IBM's just announced VS FORTRAN Interactive Debug (IAD). This new IBM Class A product will replace the current TESTFORT Class B product when it becomes available later this year. The new product will retain current capabilities including:

- Monitor the execution of VS FORTRAN programs.
- Examine and change data at execution time.
- Stop and Start the program.
- Skip over sections of code.
- Correct library argument errors.
- Set up expected subroutine inputs.
- Display subroutine outputs.

Some new features are:

- Extensive Online help and option information.
- Fullscreen interface via ISPF.
- Debugging of optimized code permitted.
- Invoked by a run-time parameter (no need to decide at compile time that you will want to run the IAD).
- New options to suspend program either on every statement, or every branch, or every subroutine entry/exit.

Communications

A session on the Yale ASCII IUP, the software UTCS uses on PACX class 132 to emulate a 3270 type terminal on various ASCII terminals, was quite interesting. The IUP is increasingly popular, and new features are still being added to the software. Users interested in some of the current features of the IUP which are not available on a real 3270 should read the new UTCS Guide to Series/1 Terminal Use (MANUAL=SERIES).

There is an increasing interest in Micro/Mainframe connection products. One such product is Micro-Tempus. A session on this product discussed its ability to extend the floppy disk. Essentially, Micro-Tempus makes regular TSO or CMS files

continued...

SHARE continued

on the mainframe look like extra-large floppy disks to a micro.

There were a number of sessions covering the new PC-XT/370. This desktop micro is a PC-XT with some additional boards to make it capable of running the same application software as any other IBM 370 architecture machine. The difference, of course, is that most IBM 370 machines come in huge boxes requiring the specialized environment of a "machine room." The speed of this "micro" is impressive, and it is actually faster than many of its larger cousins when it comes to floating point calculations.

The PC-XT/370 departs from the IBM 370 architecture in some respects, however. The differences all lie in instructions typically used only by Operating Systems. Thus MVS (and TSO) do not run on the PC-XT/370. IBM has only announced a version of VM/CMS in single user mode as the Operating System. The PC- XT/370 can run stand-alone, although it is more likely to be connected to a mainframe also running VM. In the latter mode, the micro user can dynamically configure virtual disks which appear to be on the micro but are actually on the mainframe. Software can also reside (and hence be maintained) on the mainframe and be accessed from many PC-XT/370s.

Base Systems

UTCS customers have particular interests in HSM, which was installed here this year to help manage disk datasets. Since installation, a number of problems and new requirements have cropped up. In order to ensure that our customers' concerns about HSM's directions be heard, Ted Sikorski, from UTCS's Systems Group, became involved in the HSM Project at this SHARE.

In the JES2 area, once again there was a session devoted to complaints about JCL. One area which has received particular attention the last few SHARE meetings is the confusing error messages emitted for JCL. At this meeting, IBM announced that the most common complaints about error messages have been addressed in the next release of JES2. Error messages which claim that syntax is wrong on a line will now print the offending token of JCL. The IBM JCL analyzer has also been rewritten to point out with more precision the likely spot where an error has occurred. Moreover, substitution and error messages have now been merged with the JCL input text. Hopefully these improvements will allow more users here at UTCS to become self-sufficient in coding their JCL. Representatives from the UTCS Systems Group and the Advising Group hope to be able to continue to work within the SHARE JES2 Project to seek further improvements for our customers.

A key session at this SHARE was a presentation by IBM giving their response to the SHARE Interactive Systems Task Force Report. The Task Force was formed in August 1979 to define requirements for interactive systems in the 1985 to 1990 time frame. The final report was endorsed as a SHARE strategic direction by the SHARE Board of Directors in August, 1982 and published in October, 1982. Since then, the report has received wide discussion within IBM. The response from IBM to the Task Force Report covered everything from directions in documentation to directions in software. As to the latter, IBM has stated that it is working to make ISPF the standard user interface product for all three of its interactive operating systems (TSO, CMS, and VSE). ISPF is a dialogue services manager which permits IBM as well as user applications to present "menus" or "panels" in a full screen environment. One of the most popular products to run under ISPF is PDF, the most commonly used editor on TSO.

Another of the Systems sessions was a get-together of BITNET sites. BITNET is a network of Universities in the United States. The network is made up of hardwired links running at speeds of 9600 baud. The protocols used are based on RSCS, the IBM

continued...

SHARE continued

spooler for VM. Most sites on BITNET are running VM/CMS, but some run MVS, and there are even some non-IBM mainframes on the network.

Attempts to get Ontario Universities on BITNET have failed in the past. Now the Universities have finally gotten together and the University of Toronto is one of many Ontario Universities currently experimenting with a newly formed RSCS network called OUNET. It is expected that a gateway from OUNET to BITNET might be attempted in the future.

OBS WYLBUR COLLECT

Coincident with SHARE, Online Business Systems, a marketing arm of UCLA and distributor of UTCS's WYLBUR, customarily meets with the COLLECT user group in a hotel not far from SHARE. COLLECT is made up of users of OBS products, of which WYLBUR is the main one - hence the name (COLLECT is a WYLBUR command).

In the last year, UTCS has experienced a number of problems with WYLBUR, and thus two of our SHARE attendees took time off from SHARE to represent our site at COLLECT. Compared to the other sites, we were near the median in terms of processor power and number of users. Many of the other sites have been considerably more daring in altering WYLBUR; we run a vanilla WYLBUR with only a little flavouring.

The meeting was divided into two parts. The first part was an OBS trade fair, the second a dialogue between OBS and COLLECT. During the first part OBS announced a number of products: a micro to mainframe data transfer protocol; WYLBUR for the IBM PC (incorporating this transfer package); and release 7.0 of WYLBUR which should arrive here in May or June. (We are currently running release 6.02.) The new release incorporates some attractive new bells and whistles. It resembles SPF-edit, with two screens and SPF-type line commands. There are also enhancements to the execfile facility.

At the second part of the meeting, previous suggestions made by COLLECT to improve WYLBUR were discussed, followed by a round of new suggestions. All sites participate in this balloting of suggestions/requests, and OBS chooses with reference to the priorities we COLLECTively set. Among the requirements likely to rate a high priority are some common UTCS user concerns:

- WYLBUR does not use secondary disk space allocation.
- WYLBUR interfaces to allocate datasets are clumsy.
- WYLBUR performance under MVS.

In conclusion, the SHARE62 meeting was very successful. Participants from UTCS obtained quite a bit of information useful in providing improved service to our customers, and through the requirements sessions, the concerns of our users were expressed. The next SHARE meetings are: SHARE63 on August 12-17 in Miami, Florida, SHARE63.5 on November 11-14 in Phoenix, Arizona, and SHARE64 on February 24-March 1, 1985 in Los Angeles, California.

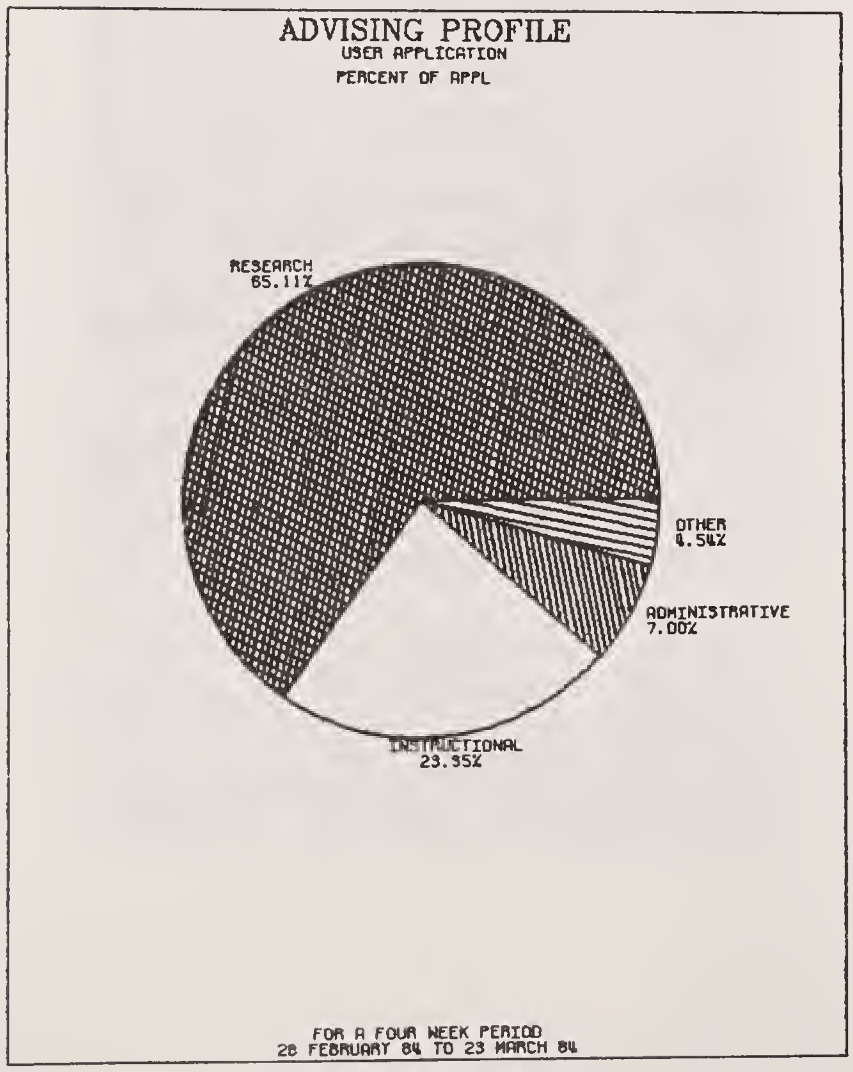
Alex Nishri

Advising Service TC Analysis

To find ways of improving service and to determine training material, the Advising Service conducts frequent surveys. One such survey, known as the TC (which stands for Time Card), is conducted once a term. It consists of a survey card which is filled out once per customer contact. At the walk-in sites the TC is filled out by customers waiting in line and is checked by the Advisor; at Phone-in Advising, the Advisor fills out the card after asking the customer for the information.

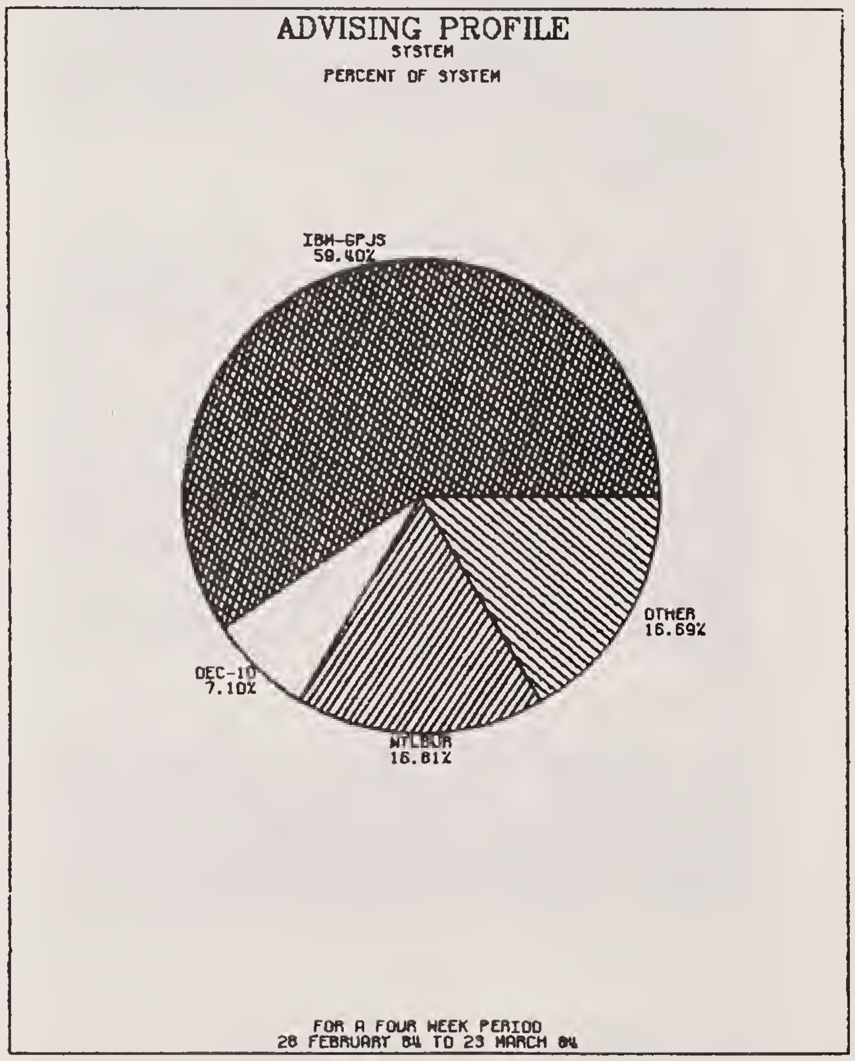
The last TC was conducted during a four week period from February 28 to March 23. Some of the results are graphed in the accompanying charts. One of the most interesting results came from a new question on this TC which tried to establish if the use of the computer which led to the problem was research, instructional, administrative, or something other than these. We discovered, as seen in graph #1, that an overwhelming majority of those using the Advising Service are using computing services for research.

Graph #1



For the purpose of the survey, each UTCS machine or software environment was considered a separate system. Thus IBM-GPJS, WYLBUR, TSO, DECsystem-10, PACX, Datapac, SHARP/APL, Micros, Terminals, and UNIX PDP-11/70 were some of the valid systems which could describe where the problem occurred. IBM-GPJS constituted the source of 59% of our problems, as graph #2 shows. It is interesting to note that problems on the MVS system, which includes WYLBUR, TSO, and GPJS, generate 79% of the Advising Office's customer contacts. (TSO accounts for 2.86%; in graph #2, it is included in "Other.")

Graph #2



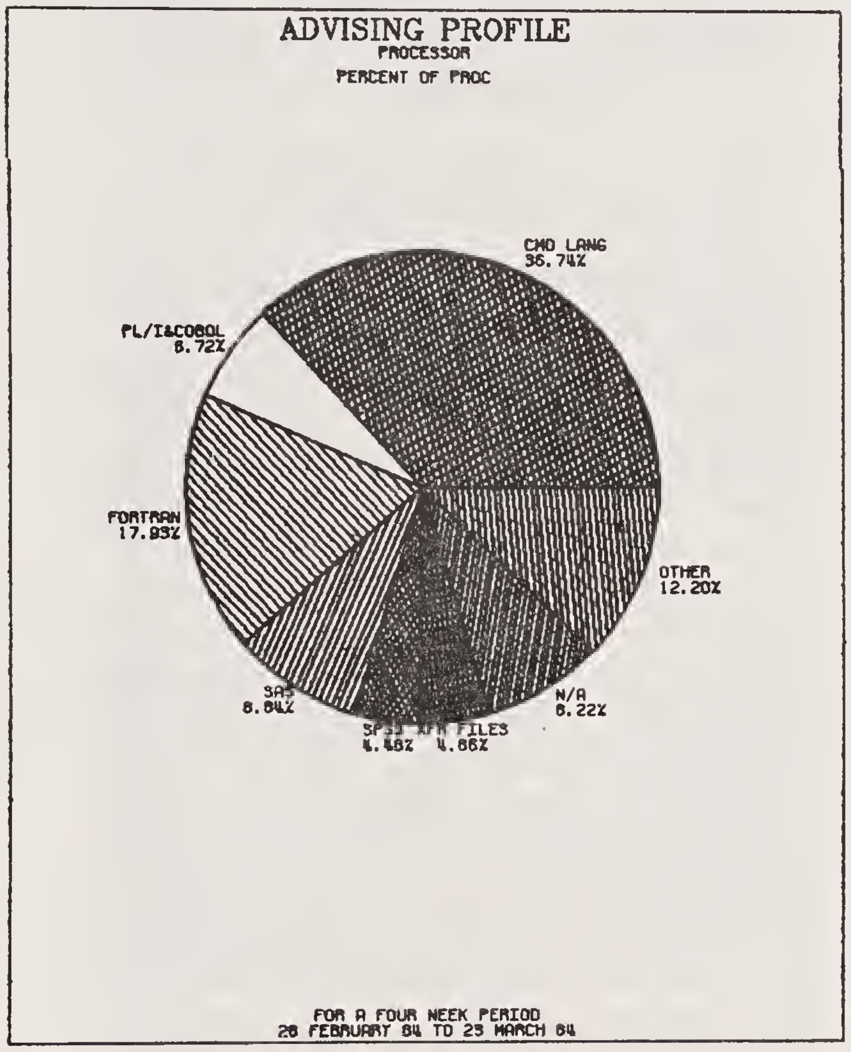
Another question attempts to establish which processor was being used at the time of the problem. As graph #3 shows most problems occur with using the operating system itself, the "command language."

continued...

Advising Service continued

This includes the commands to access the system (or JCL in the case of GPJS). It also includes disk files and tape file management and manipulation. Our survey showed, not surprisingly, that the MVS systems, with its complex file management and JCL, accounted for 83% of "command language" problems.

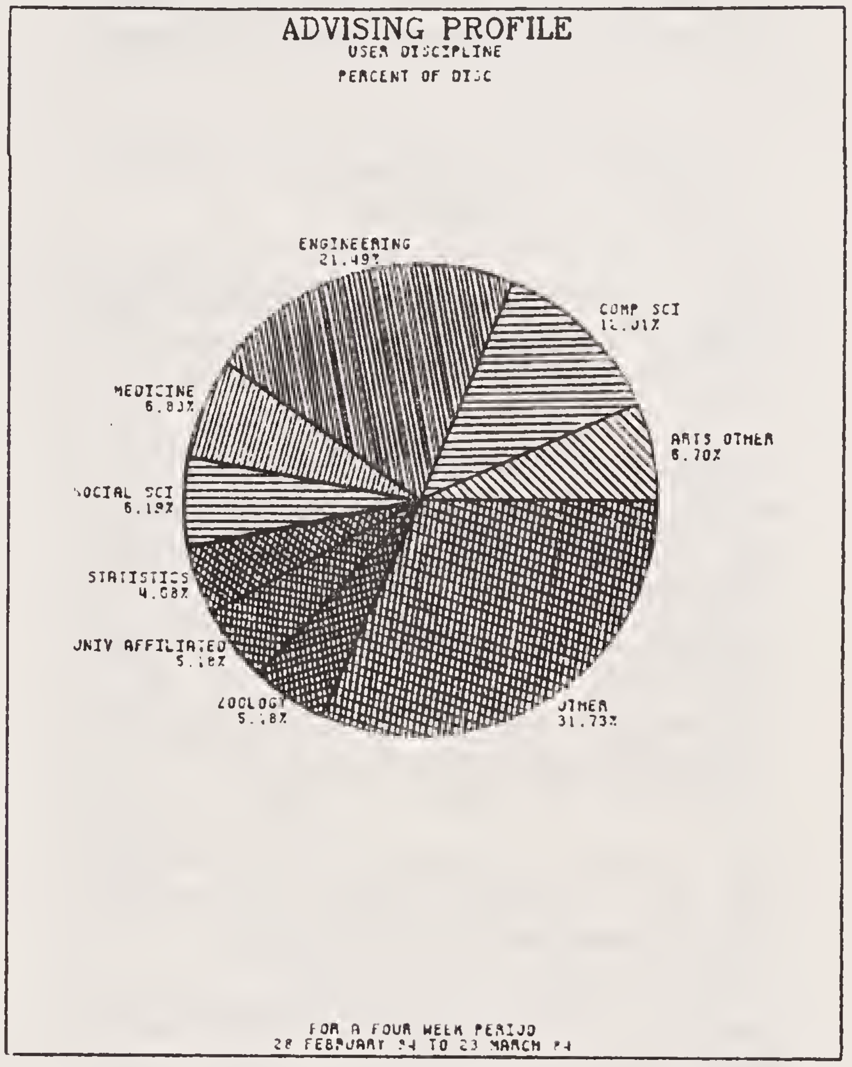
Graph #3



If command language is excluded, 28% of customer contacts involve problems with the FORTRAN Language (but not graphical or numerical subroutines invoked from FORTRAN), 11% involve SAS (excluding SAS/GRAPH which accounts for an additional 3%), 10% involve either PL/I (including SP/K and PL/C) or COBOL, 8% involve intermainframe file transfer utilities, and 7% involve SPSS. All other processor categories constitute less than 5% of the problems.

Graph #4 shows which department our customers are with (not which department issued the accounts to access the system).

Graph #4



This survey is very useful for planning Advisor training. Along with a more extensive one done last November, it is also being used to consider changes in the Advising Service which will result in improvements for our customers.

Alex Nishri

Graphs by Taras Pryjma

Online Documentation

On June 5, 1984 users of WYLBUR and TSO will be able to access all UTCS online documentation through updated versions of:

(WYLBUR) DO DOCUMENT
(TSO) DOCUMENT

Using a combination of menus and prompts, the new versions will allow you to:

- Select any online UTCS document.
- Select one or more documents at a time.
- Review any document on the screen before printing.
- Search for an unknown document using keywords.
- Determine currency of a document by looking at an Update Summary.

For the sake of simplicity, I will describe only the WYLBUR EXEC file; the TSO CLIST operates in a similar fashion.

The EXEC file is designed so that if you already know the MANUAL code of the Manual that you wish to print (e.g. WYLINTRO for the UTCS Guide to WYLBUR), you can enter the EXEC file and immediately produce a hardcopy at the printer of your choice. MANUAL codes are provided in UTCS Catalogue Abstracts available through the Information Office, in online advertising of a document, and are often mentioned in other UTCS online documents. An updated list of online documents and their MANUAL codes appears in "New UTCS Documents" in each issue of *COMPUTERNEWS*.

By selecting a manual for "Print", the manual chosen is stored and will be printed when you exit the EXEC file. Printing the manual is only one of several choices. You may choose:

Review	- fetch the manual to the terminal
Restart	- start the EXEC file again
Exit	- terminate the EXEC file
Update Summary	- choose the Update Summary of a manual
HELP	- obtain help (available at any point in the EXEC)

Now, if you wish to print or review other manuals, you may "Restart" the EXEC and use the search capability to find other manuals. This illustrates the looping structure of the EXEC. The loop enables you to obtain as many documents as you wish without leaving the EXEC file. However, if you choose to "Review" the manual selected, the manual will be fetched to the ACTIVE file for normal WYLBUR reviewing and searching. This will force an exit from the EXEC file and leave you in review mode. If "Review" is selected and there are manuals that have already been selected for printing, the EXEC will first offer to print the manuals before going to REVIEW mode and terminating the EXEC file. (In TSO, you are not forced out of the CLIST, but may only look at the manual one page at a time by hitting the carriage return key. Typing "end" will return you to the CLIST.)

Associated with every manual is an Update Summary which outlines the changes that have been made to the document since it was installed. You can think of an Update Summary as just another manual. Therefore, it can be printed or "reviewed." Since it will normally be rather short in length, it is quite likely that you will review the summary rather than print it. If the summary is lengthy or important to you, it can be printed and kept with the manual as an amendment. If at anytime you choose to exit (terminate) the EXEC file, the EXEC will offer

continued...

Online Documentation continued

to print any manuals already selected for print.

If you do not know the MANUAL code for the document you want, or if you want to know which manuals are available for a particular subject, the EXEC file provides two features that will help in locating the desired manuals. First, you may list at the terminal an "index" of major KEYWORDS. Keywords, such as GPJS or WYLBUR, will start you off on the search for a GPJS or WYLBUR manual.

Second, the EXEC is written in such a way that if you respond to the KEYWORD prompt with one of the suggested keywords or with any word that would reasonably be associated with a document, the EXEC will narrow down the search of all manuals available on the system and tell you how many manuals are available that refer to the given keyword.

For example, if you enter: WYLBUR, the EXEC may tell you that there are 7 manuals which refer to WYLBUR. The EXEC will now prompt you for another keyword and some other choices. If you respond with another keyword, e.g., REFERENCE, you may be told that there are two WYLBUR documents which could be classified as reference documents.

The other choices mentioned above are: "list", "index", "restart", "exit", and "? for HELP". If you select HELP, a brief description of each option is listed at the terminal, and you are prompted again with the same choices.

If at this point, the EXEC file informs you that there are two WYLBUR manuals which could be referred to with a keyword of "reference", you may not be able to think of any further relevant keywords. So, you select the "list" option, and all the manuals found in the search are then listed at your terminal.

When the manuals are listed, the manual name appears, preceded by a SEQUENCE number (SEQ #) and a publication date. Also, on the line after each manual name is a list of keywords which refer to that manual. The first keyword listed is the UTCS MANUAL code.

You will now be prompted for:

```
SEQ # or carriage return to continue or
 ? for Help
```

To select the desired manual, type in the SEQUENCE number.

You may now repeat the process of either listing the other manuals that were found or searching for other manuals by staying in the loop structure. If you have found all the documents you wish, you would exit the EXEC file. The EXEC will now prompt you for all the print options for each document: PGMR NAME, PRIORITY, DESTINATION, FORMS, and COPIES. If you wish your output to go to the LASER printer, respond: LASER in answer to the DESTINATION prompt.

As is usual with EXEC files and CLISTS, there is an online HELP explaining how to use the utilities. They are:

(WYLBUR)	DO DOCUMENT?
(TSO)	HELP DOCUMENT

To obtain a list of all documents available through the utilities, WYLBUR users may type:

```
DO DOCLIST
```

As mentioned before, the TSO CLIST works in a similar fashion to the WYLBUR EXEC file. By referring to the TSO HELP, you can see the small differences involved.

Reminder: Obviously, these new features are available only to interactive users. If you wish to print an online document through a batch job, either with cards or from the DECsystem-10 or UNIX PDP-11/70 environments, please see "Printing UTCS Guide through GPJS" at the Information Office.

Steven Younker

New DECsystem-10 Help: HELP PRODUCT

There is a new HELP on the DECsystem-10 that should be of great benefit to all DECsystem-10 users. HELP PRODUCT is a list of products, manuals, documents and help files accessible to users on the DECsystem-10. Information includes the file name, support class (see next article), and a short description of the product.

Users can scan through it by typing HELP PRODUCT. Be warned, however, that the list is quite long. To print the entire list you might want to type the following command:

```
.IPRINT =/DEST:CENTRAL/FORM:2017 HLP:PRODUCT.HLP
```

When trying to find software or documentation for a particular task, you can use SOS to search the list. For example, if you wanted to use the keyword "letter" to search the list, you could do the following (upper-case denotes what you (the user) type):

```
.SOS HLP:PRODUCT.HLP/R/NONUM
*FLETTER <ESC>,999
blocks.exe      sys:      feb-81    c    creates banners in huge letters
blocks.hlp      hlp:      apr-81    c    help for block letters program
letter.exe      sys:      apr-83    c    make batch form letters
letter.hlp      hlp:      may-83    c    make batch form letters
*EQ
```

Note: <ESC> denotes escape key

This has found two programs, both Class C, and their corresponding help files. If more information is desired, HELP BLOCKS or HELP LETTER can be tried.

The list contained in HELP PRODUCT is maintained by the Advising Office.It contains all files in the DOC:, HLP:, and SYS: areas which can be invoked by a user.

If there are any questions or problems, call Advising Services at 978-HELP.

Veronika Moravan

New Online Help for Support Classes

UTCS assigns a support class to all software products. Class A product support means adequate resources are available to assist users with problems or questions through the Advising Service. Class B means there is limited support offered by UTCS. Users may still seek advice from the Advising Service, but frequently an appointment is

continued...

Support Classes continued

necessary with the Consultant who supports it. Class C means no support by UTCS. Anyone using a Class C product is encouraged to contact the Advising Service to see if there are alternative products.

For more information on support classes, please see the online help files on WYLBUR, TSO, IBM-GPJS, DECsystem-10.

To access online help files:

WYLBUR users type	do ibmhelp support
TSO users type	help support
Batch users run	// EXEC SUPPORT
DEC-10 users type	help support

Veronika Moravan

A Few Hints to Improve Throughput and Reduce Costs

IBM users who run jobs using tapes may be able to improve their productivity. If you have to run several jobs that will read a tape dataset, consider running a single job to move the tape dataset to online disk; using this online dataset you can then run the other jobs. If your several jobs were Class B because of the tape mount required, this method will probably save a lot of time.

IBM FORTRAN users who use temporary disk datasets (DSN=&&NAME) and do not code any DCB information might find that they can drastically reduce costs by using larger blocksizes and coding RECFM=VBS to use the blocks more effectively.

DECsystem-10 SOS users can reduce their disk storage charges by saving their files without the sequence numbers. Instead of exiting SOS with E, or EN, use EU or ENU. This will save the file without sequence numbers. (SOS will generate new temporary numbers for you each time you edit the file.)

Terry Jones

The Census Tape Project

In the last issue of *COMPUTERNEWS,* it was announced that UTCS was in the process of acquiring a selection of 1981 census tapes. At present, the SNAC group is preparing several tools to assist users in accessing this data. This article reviews the type of data available on the census tapes and briefly describes the work in progress to assist users.

The census is much more than a head count - you get a wide range of information on incomes, housing, the work force and cultural characteristics. Some of the basic census information that is tabulated on census tapes is:

1. Population: sex, age, marital status, language, ethnic origin, religion, education, place of birth, immigration, citizenship, migration.
2. Families: size, husband-wife or one-parent, number of children.
3. Households: number of persons, families and lodgers.
4. Private dwellings: apartments or single houses, length of occupancy, rented or owner-occupied, number of rooms, type of heating, value, shelter costs.
5. Labour force: employment, occupation, industry, income, source of income.

Statistics Canada provides several volumes of written documentation along with the tapes. A copy of all this written documenta-

continued...

Census Tapes continued

tion will be made available for reference in the UTCS Information Office. Since the sheer bulk of this documentation can be a barrier to using this rich source of information, the SNAC group is currently preparing a cross-referenced index to assist users in locating the precise census tables which they need for their research. This index will be available online for browsing from a terminal, and users will be able to print some or all of the information for permanent reference. The cross-referenced index will include all three census years for which we have tapes, that is 1971, 1976, and 1981. The cross-referenced index will provide the tape slot number at UTCS corresponding to each census table and the location of pertinent Statistics Canada documentation.

Sample SAS® programs are being written to illustrate one approach to bringing subsets of data off the tapes. This set of programs will access comparable data from all three census years, as a model for studying trends over time. In this type of study, care must be taken in spatial analyses, because the basic geographic areas change between censuses. In addition, the quality of data may vary from year to year. For example, the reporting of Structural Type of dwelling can be expected to be subject to potentially significant response error. This could be due to the variety of complex structures, regional differences in terminology, and local real estate advertising. As well, in 1976 the Structural Type was determined by the Census Representative, and in 1981 it was determined by the respondent.

All of the census tract level tapes which were ordered have arrived, but some of the census subdivision levels are still on order. Anyone interested in learning more about the census tapes should contact Diane Mitchell at 978-5128.

Diane Mitchell

® Registered trademark of SAS Institute Inc., Cary, N.C.

SAS® 82.4 Now Available

Version 82.4 of SAS, the Statistical Analysis System, is now available for user testing. To obtain the test version, simply code LEVEL=824 on the // EXEC SAS statement or LEVEL(824) on the TSO SAS command line. This is a relatively minor update of the SAS system, and it is planned that 82.4 will become the default version on June 11, 1984. Watch HOTNEWS for announcements.

In addition to fixes for various bugs, the following enhancements have been made:

1. PROC FSCALC - this is fullscreen electronic spreadsheet available under TSO using PACX class 132 at UTCS. It has flexible "what-if", titling and labeling, and report writing capabilities. PROC FSCALC is documented in SAS Technical Report P-133, which is available at the Information Office, Room 206, of the Engineering Annex.
2. PROC TCALENDAR is an enhanced version of PROC CALENDAR which can include nonstandard work weeks and holidays. The ability to handle holidays and nonstandard work weeks is also included in the SAS/OR PROC CPM.
3. PROC XCOPY is now available for transferring SAS data libraries between an IBM system and other versions of SAS, such as the VAX/VMS version. A description of this procedure is contained in SAS Technical Report P-128 "Changes and Enhancements in the Base SAS and SAS/GRAPH Products under VMS, Version 4."

John Roth

® Registered trademark of SAS Institute Inc., Cary, N.C.

EISPACK

EISPACK is the EIgenSystem PACKage from Argonne National Laboratories which can be used to solve a wide range of eigenvalue-eigenvector problems. In addition to the standard methods of calling a series of routines to solve a problem in stages, EISPACK provides two additional methods. A problem of a specific type can be solved by using a "driver" routine. For example, CALL RG(arguments) will solve a real general matrix for eigenvalues and/or eigenvectors. The other method is to use CALL EISPAC, specifying the matrix to be real general with character string arguments. The latter method requires that the EISPACK library be made available as a run time library during the execution step of the job and the routines required are loaded dynamically.

The original EISPACK library was compiled with FORTRAN H-extended and ran successfully at UTCS until the implementations of VS FORTRAN. Then, in order for CALL EISPAC to work, certain routines like SQRT were linked into the modules for certain subroutines. Because SQRT and others referenced the old FORTRAN run time library and the run time library had changed, jobs would fail in the link step with unresolved external references using VS FORTRAN. The by-pass was to use the old FORTRAN run time library.

The library has now been relinked, removing SQRT and like routines. EISPACK now works with VS FORTRAN, and produces identical results to those produced using the old run time library and H-extended compiler. All users are encouraged to use VS FORTRAN, the default, since it is the only fully supported FORTRAN compiler. The old FORTRAN run time library may be removed from the system shortly.

The only thing that does not work with the new EISPACK library is CALL EISPAC. This is (possibly wrongly!) considered to be a little used feature. The by-pass is quite straightforward: use the appropriate "driver" routine. This change occurred on May 1, 1984.

Any users with problems should contact Advising Services at 978-HELP.

John Roth

Microcomputer News

UTCS has hired a second microcomputer specialist, Willard McCarty. Willard was formerly the Computer Consultant for Records of Early English Drama at U of T and was involved in setting up their microcomputer-based typesetting system. The addition of Willard will allow UTCS to provide a greater amount of general microcomputer consultation. He will be responsible particularly for specialized questions relating to microcomputer database products, e.g. dBase II. Please feel free to call Grant Davis (978-5071) for assistance with any microcomputer related questions.

Grant Davis

File Transfer Service in Production

Starting June 1, UTCS will be offering a new service called the "File Transfer Service" (FTS). It has previously been referred to as "KERMIT." This service will allow for the error-free transfer of files between a user's microcomputer and the IBMMVS system and will be based on a file transfer protocol called KERMIT.

We will be using KERMIT to provide transfers between your computer and the communication hub VAX. On this VAX, there will be software that will automatically transfer your files to the IBM MVS. Alternatively, you can ask the FTS to get you a file or number of files from the IBM MVS. Then you can transfer them down to your microcomputer using KERMIT.

For access to the File Transfer Service you must use:

PACX Class 60
Baud Rates 300, 1200 or 4800
EVEN Parity

Note: UTCS reserves the right to restrict transfers at 4800 baud to off-prime hours.

UTCS will be providing software and support for KERMIT implementations on the following computers for specific hardware configurations and for the operating system indicated:

- IBM PC or XT (PC-DOS 1.1 or 2.0)
- APPLE II (DOS 3.3) with SuperSerial Card
- DEC LSI-11 (RT-11 V4 or V5) with DL11 serial interface

There will be two charges for this service:

- The processing on the IBM MVS will be charged to your GPJS SAC since the FTS submits GPJS jobs to transfer files.
- On the FTS, charges will be based on connect time at a rate of $2.50 per hour ($1.50 per hour during off-prime hours).

Thus users of this service will require a FTS Code to access this service as well as having a GPJS SAC. To obtain a FTS Code, contact the UTCS Accounting Office at 978-8703.

For information and detailed instructions, see:

- UTCS Guide to File Transfer Service.
- UTCS Guide to KERMIT

Both will be available from the Information Office in early June.

For more general information, please contact Grant Davis at 978-5071.

Philip Murton

FORTRAN Level 1.3.1 Available for Testing

Level 1.3.1 of IBM's VS FORTRAN is available for testing through a new and enhanced set of catalogued procedures. These PROCS have VS FORTRAN level 1.3.1 and LANGLVL(77) as default. They support up to four user libraries without extra JCL. They do not support the G1 and H extended compilers. The LEVEL keyword has been dropped.

This release of FORTRAN has many features. For example, execution time error messages are now in a more readable form. Error messages also include more information, such as statement numbers. A new feature of VS FORTRAN allows transparent passing of FORTRAN 77 style character variables to and from FORTRAN 66 style Hollerith strings. One result of this feature is that there should be no compatibility

continued...

FORTRAN continued

problems using the UTCS PLOTBASIC plot routines.

Many machines now run FORTRAN 77 only; writing code to adhere to this standard will allow you to move more freely from machine to machine. Moreover, Release 1.3.1 will eventually become the UTCS production FORTRAN; now is the time to test your program. If in doubt please contact Advising Services at 978-HELP.

The new procedures are as follows:

FORN	Compile
FORNLE	Compile and Linkedit
FORNLEGO	Compile Linkedit and Execute
FORNGO	Compile Load and Execute
FORNGOUL	Compile Linkedit and Execute (includes Gould plotter)
FORNPLOT	Compile Linkedit and Execute (includes Calcomp plotter)

WARNING:

1. Programs written using the FORTRAN 66 standard must have small changes made to them before they can CORRECTLY run using the FORTRAN 77 standard. FORTRAN 66 programs can be successfully run by coding

```
// EXEC procedure-name,
//   PARM.FORT='LANGLVL(66)'
```

2. Users who keep load modules please be advised that this new release of VS FORTRAN produces load modules which are compatible with those produced by FORTRAN G1, H, and H extended, *but not with prior Releases of VS FORTRAN.*

Terry Jones
Alex Nishri

PL/I Release 4.0 at UTCS

PL/I users may have heard of the initial problems that were experienced by users of PL/I (Release 4.0). These have been resolved, and the processor has proven itself extremely reliable. UTCS suggests users test their PL/I applications with it since it will eventually become the UTCS production PL/I processor as well as the only IBM supported PL/I processor. Please watch the UTCS information media for further details and developments.

If you have any questions about this processor please contact the Advising Services at 978-HELP.

Herb Kugel

MASSCOMP Computer System

UTCS has negotiated the loan of a computer system from MASSCOMP CANADA, a new joint venture of LANPAR TECHNOLOGIES, INC. and MASSCOMP, INC.

The hardware configuration of the machine is:

Model MCS566

- VLSI (multiple 68000) virtual memory CPU with graphics, floating point processors
- Data Acquisition option with separate processor and multi channel A/D, D/A I/O

continued...

MASSCOMP continued

- 2 Mbytes memory
- 166 Mbytes DASD
- IBM compatible 1600 bpi tape drive

The software available on the machine is:

Operating System

- 16 user combined Berkeley and AT & T Unix and various languages

The target environment for this system is graphics, highspeed data acquisition and computation.

The system is reported to operate close to a VAX 750 on selected tasks.

Demonstrations, benchmarks and general use of this system is possible. Please arrange for your needs through Moira Dean of MASSCOMP at 475-9123. Norman Housley of UTCS may also be contacted at 978-4967 for information.

Norman Housley

Hours of Service

The following hours of service are in effect for:

Canada Day

	June 30 (Saturday)	**July 1 (Sunday)**	**July 2 (Monday)**
3033/N12 GPJS(Classes B,E), TSO, Calcomp	10:00-18:00	10:00-18:00	closed
3033/N12 GPJS(Class A), WYLBUR, APL,	10:00-18:00*	10:00-18:00*	unattended
DEC1090, 11/70	10:00-18:00*	unattended	unattended
BICS	unattended	unattended	unattended

* Running unattended outside these hours.
Normal hours of service for all systems will resume Tuesday, July 3, 1984.

Civic Holiday

	August 4 (Saturday)	**August 5 (Sunday)**	**August 6 (Monday)**
3033/N12 GPJS(Classes B,E), TSO, Calcomp	10:00-18:00	10:00-18:00	closed
3033/N12 GPJS(Class A), WYLBUR, APL,	10:00-18:00*	10:00-18:00*	unattended
DEC1090, 11/70	10:00-18:00*	unattended	unattended
BICS	unattended	unattended	unattended

* Running unattended outside these hours.
Normal hours of service for all systems will resume Tuesday, August 7, 1984.

In the event of any changes to the above schedules, a notice will appear in the July/August issue of *COMPUTERNEWS* and also in HOTNEWS one week prior to the holiday.

Summer hours of service for the University of Toronto are 8:45 - 16:30 and will be in effect July 2 through August 31, 1984.

Note: for normal hours of service see "UTCS Terminal and Advising Sites" at the back of this issue.

UTCS Noncredit Short Courses

Computing Services is offering the following short courses throughout June and July. Complete course descriptions for these and other noncredit courses offered at UTCS are available at the Information Office, Engineering Annex, Room 206.

All short courses are held in the UTCS Education Facility, Room 221, McLennan Physical Laboratories. Due to the limited seating capacity in the Education Facility, and the number of terminals available for our hands-on courses, registration is required for short courses.

Please note that we reserve the right to cancel courses, if registration is too low.

Anyone interested in taking any of these courses must register in person with:

Educational Services Support Specialist
Engineering Annex, Room 207
978-4565

A $10 nonrefundable Administration Fee per course payable by cash, cheque, or on a Customer Account Number (CAN), is due at the time of registration.

DDS101 - Introduction to IBM Disk Datasets

Date:	June 1, 1984
Time:	2:00-4:00 p.m.
Date:	July 6, 1984
Time:	10:00-12:00 noon

SAS101 - Introduction to SAS

Prerequisite: DDS101, WYL101

Date:	June 18-22, 1984
Time:	2:00-4:00 p.m.
Date:	July 16-20, 1984
Time:	2:00-4:00 p.m.

SOS/SCR101 - Introduction to SOS & SCRIBE

Date:	June 25-29, 1984
Time:	9:30-12:30 p.m.

WYL101 - Introduction to WYLBUR

Prerequisite: DDS101

Date:	June 4-6, 1984
Time:	10:00-12:00 noon (June 4-5) 10:00- 1:00 p.m. (June 6)
Date:	July 9-11, 1984
Time:	10:00-12:00 noon (July 9-10) 10:00-1:00 p.m. (July 11)

Irene Rosiecki

Change Committee

Changes To The Academic IBM 3033/N12 System

1. A new release of ISPF was installed for testing on April 9.
2. Internal testing of SAS 82.4 began on April 25. User testing of this product is scheduled to begin May 14.
3. BMDP'83 was installed for production as of April 30.
4. Online HELP files were installed relating to the use of the IBM Series/1 front end computer.

Changes to the PDP 11/70

1. The SENDMAIL command was re-installed on March 29.
2. A SHELL modification has been made which will automatically disconnect users after 30 minutes of keyboard inactivity.

Changes to the DECsystem 1090

1. HELP files listing available programs and products were installed for use on March 30.

Changes to Other Systems and Services

1. UTCS is planning to connect to BITNET in the near future. The first step of this process is to connect to Ontario Universities Network (OUNET) which was done on March 26.
2. KERMIT the file transfer facility on the VAX, has been renamed "FTS" (File Transfer Service). It is currently being tested and is scheduled for full production on June 1.
3. As of May 1, charging rates on the various machines have been changed. See the article "Rate Changes" elsewhere in this issue of *COMPUTER-NEWS.*

Joan Coutts

New UTCS Documents

New UTCS Documents in hardcopy

UTCS Catalogue: Access, Part 2
UTCS Guide to SCRIBE

Previously announced:

The SOS Workbook
UTCS Catalogue: Access, Part 1
UTCS Catalogue: Text Products
UTCS Guide to Mainframe File Transfer Facility
UTCS Guide to XEROX 9700 Printing

New UTCS Guides online

UTCS Guide to SCRIBE (on DECsystem-10 only
TY:DOC:SCRIBE.DOC;
for printing instructions
see page 1 of document)

UTCS Guide to Series/1 Terminal Use	(MANUAL=SERIES)
3270 Emulation:	
UTCS Guide to	
Cybernex APL100 and Volker Craig VC404	(MANUAL=CYBER)
DM1520	(MANUAL=DM1520)
Hardcopy Terminal	(MANUAL=HARDCOPY)
IBM 3101	(MANUAL=SERIES)
SOROC IQ	(MANUAL=SOROC)
VT52	(MANUAL=VT52)
VT100	(MANUAL=VT100)

Previously announced:

UTCS Guide to APL	(MANUAL=APL)
UTCS Guide to APL XFR	(MANUAL=APLXFR)
UTCS Guide to GPJS	(MANUAL=GPJS)
UTCS Guide to IBM MVS Online Storage	(MANUAL=IBMDISK)

continued...

New UTCS Documents continued

UTCS Guide to Mainframe File Transfer Facility
(MANUAL=MFTF)
UTCS Guide to WYLBUR (MANUAL=WYLINTRO)
UTCS Guide to XEROX 9700 Printing
MANUAL=X9700SAM (with font samples, printed on the 9700)
MANUAL=X9700 (without fonts, output from line printer)

This Guide is also available in hardcopy from the Information Office. This is the cheapest way to obtain it.

To print online documents, WYLBUR users type "do document?", TSO users type "help document", APL users type ")LOAD 1 UTCSGUIDE <CR> HELP".

Personnel Changes

A warm welcome to **Clement Ferdinand.** Clement is on staff now in Operations.

Jonathan Alexander, the Waterloo Co-op student working in the Advising Office, has left to return school, but will be back in September. **Ken Rentner,** the Co-op who preceded Jonathan, has returned for another work term with Advising.

Mary Young Hong, a University of Toronto Computer Science student, has joined Publications for the Summer.

Elizabeth Weitmann

Recent Acquisitions in the Computer Library

Alefeld, Gotz and Herzberger, J.
Introduction to interval computations.
New York, Academic Press, 1983.

Arbib, Michael A.
Computers and the cybernetic society, 2d ed.
Orlando, Fla., Academic Press, 1984.

Association for Computing Machinery.
Proceedings of ACM '83 (38th annual conference).

Belford, Geneva G. and Liu, C.L.
PASCAL.
New York, McGraw-Hill, 1984.

CERN School of Computing, 7th, Zinal, Switzerland, Sept. 1982.
Proceedings.
Geneva, European Organization for Nuclear Research, 1983.

Clocksin, William F. and Mellish, C.S.
Programming in Prolog.
Berlin, Springer-Verlag, 1981.

Conferencia Internacional en Ciencia de la Computacion, 3d, Santiago, Chile, Junio 1983.
Proceedings.
Santiago, Pontificia Universidad Catolica de Chile, 1983.

Cooper, James Arlin.
Computer-security technology.
Lexington, Mass., D.C. Health, 1984.

Dizard, Wilson P.
The coming information age: an overview of technology, economics and politics.
New York, Longman, 1982.

International Computer Software and Applications Conference, 7th, Chicago, Nov. 1983.
Proceedings (COMPSAC 83).
Silver Spring, Md., IEEE, 1983.

continued...

Computer Library continued

Salvaggio, Jerry Lee, ed.
Telecommunications: issues and choices for society.
New York, Longman, 1983.

Waite, William McCastline and Goos, G.
Compiler construction.
New York, Springer-Verlag, 1984.

Welford, Alan Traviss.
Skilled performance: perceptual and motor skills.
Glenview, Ill., Scott, Foresman and Co., 1976.

Workshop on Adaptive Computational Methods for Partial Differential Equations, University of Maryland, Feb. 1983.
Adaptive computational methods for partial differential equations, ed. by I. Babuska et al.
Philadelphia, SIAM, 1983.

Stephanie Johnston

Consulting and Enquiries

Advising Supervisor	Alex Nishri	MP345	7109
External Marketing Consultant	Ihor Prociuk	MP257	6875
Erindale College	Peter Wall	2043	828-5311
Scarborough College	William Barek	S626	284-3173

General Enquiries	Dale Wright	EA206	4990
Account & Access Code Enquiries (U of T)	Agatha Stevens	MP337	8703
Account & Access Code Enquiries (External)	Sylvia May	MP337	7148
Tape Library (Academic Services)	Stella Martin	MP368	7319
Tape Library (Administrative Services)	Miranda Fong	MP368	6693
U of T Computer Library	Stephanie Johnston	EA206	2987

Central Advising Office (Appointments)	HELP	300 Baud Interactive Services	6200
Central Advising Office (Phone-in)	HELP	1200 Baud Interactive Services	3959
System Status Enquiries (DEC)	4318	DATAPAC	4320, 0056
System Status Enquiries (IBM)	7393	Telenet	0302043200056
		Tymnet	<backspace> DPAC;302043200056

UTCS Directory

Director	Dr. Warren Jackson	MP350	8948
Associate Director	Eugene Siciunas	MP350	5058
Senior Budget Analyst	Sheila Brown	MP350	8697

Managers

Communications & Technical Support	Norman Housley	SF4306	4967
Internal Systems & Administration	TBA		
Operations	Dr. Bob Chambers	MP350	7092
Systems	Bill Lauriston	MP331	3579
User Interface	Don Gibson	MP350	7331

Committees on Computing

UTCS Board	Chairman	Prof. D.M. Nowlan	4984
BICS Steering Committee	Chairman	Prof. R.C. Holt	8726
Committee on Academic Computing	Chairman	Prof. J.Z. Buchwald	7391
Committee on Computer Networks & Telecommunications	Chairman	Mr. A. Heyworth	4936
Committee on Computing Facilities & Services	Chairman	Prof. J.D. Bossons	8626
Computing Disciplines Facility	Chairman	Prof. E.C.R. Hehner	6026
LIBRA Steering Committee	Chairman	Prof. G.S. Graham	6321
Natural Language Processing Steering Committee	Chairman	Prof. I. Lancashire	828-5273
UTCS Users' Committee	Chairman	Prof. J.C. Hurd	3056
	Secretary	Ms. C. Pereira	4463

UTCS Terminal and Advising Sites

Names and Locations

- **Central Advising Office (CAO), 978-HELP**
- **Education Facility (Educ),** McLennan Labs, 60 St. George St., Room 221
- **Engineering Annex (EAT, EUT, CDF),** 11 King's College Road, Rooms 103, 104, 107, 201, 203.
- **Erindale College (Erin), 828-5339,** Mississauga Road, Erindale Campus, Rooms 2005, 2039, 2045
- **Robarts,** Robarts Library, 130 St. George St., Room 1061A
- **Scarborough College (Scar), 284-3122,** Military Trail, Scarborough Campus, Room S624, S625, S627, S628, S628A
- **Sidney Smith (AST & ASUT),** 100 St. George St., Rooms 1071, 1073, 2105
- **St.Michael's College,** 121 St. Joseph St., Room 101
- **Trinity College,** 6 Hoskins Ave., Room 024
- **Victoria University,** 73 Queens Park Cres., Room 012.

Sites	**Hours of Operation**				**Restrictions***	**Advising**
	Mon-Thurs	Fri	Sat	Sun		
AST	8:00-22:00	8:00-22:00	8:00-22:00	8:00-22:00	Research	978-HELP
ASUT	7:00-24:00	7:00-24:00	7:00-24:00	7:00-24:00	BICS	No
CAO	10:00-18:00	10:00-18:00	closed	closed	Research	978-HELP
CDF	24 hrs	24 hrs	24 hrs	24 hrs	Res/Under	No
EAT	24 hrs	24 hrs	24 hrs	24 hrs	Research	978-HELP
Educ	24 hrs†	24 hrs†	24 hrs†	24 hrs†	Research**	978-HELP
(outer)	24 hrs†	24 hrs†	24 hrs†	24 hrs†	Research	978-HELP
Erin (2039)	9:00-17:00	9:00-17:00	24 hrs	24 hrs	Research	Rm 2005
(2045)	24 hrs	9:00-17:00	24 hrs	24 hrs	Undergrads	Rm 2005
EUT	24 hrs	24 hrs	24 hrs	24 hrs	BICS	No
Robarts	8:30-23:00	8:30-18:00	9:00-17:00	closed	BICS	No
Scar	9:00-24:00	9:00-24:00	10:00-17:00	closed	Research	Rm S624, S626
					Undergrads	Rm S624
St.Michael's	closed	closed	closed	closed	BICS	Arranged by College
Trinity	8:00-17:00	8:00-17:00	closed	closed	BICS	Arranged by College
Victoria	closed	closed	closed	closed	BICS	Arranged by College

* Research includes graduates, faculty, staff. ** May be unavailable due to UTCS courses. † Building closes at 22:00.

Advising Hours

CAO Monday to Friday, 10:00 - 18:00 Erin, Scar During normal hours

Services Available
(Y=yes, N=no)

	BICS	**Keypunch**	**PACX**	**Printers**	**Oracle**	**UNIX**
AST	N	Y	Y	Y	N	N
ASUT	Y	N	N	Y	Y	N
CDF	N	N	N	Y	N	Y
EAT	N	Y	Y	Y	N	N
EUT	Y	N	N	Y	Y	Y
Educ	N	N	Y	N	N	N
Erin	N	N	Y	Y	N	Y
Robarts	Y	N	N	Y	Y	N
Scar	N	N	Y	Y	N	Y
St.Michael's	Y	N	N	Y	Y	N
Trinity	Y	N	N	Y	N	N
Victoria	Y	N	N	Y	N	N

UTCS Systems

3033/N12 Processor

- located in McLennan Physical Laboratories
- provides General Purpose Job Stream, TSO, WYLBUR, APL
- 12 megabytes of memory
- MVS with JES2

3033/U16 Processor

- located in McLennan Physical Laboratories
- provides instructional access using BICS
- 16 megabytes of memory
- UTS (modified UNIX Seventh Edition) under VM/370

4341 Mod II Processor

- located in McLennan Physical Laboratories
- provides administrative IMS/VS, DB/DC, Batch and TSO
- 16 megabytes of memory
- MVS with JES2

DECsystem-10 Model 1090

- located in McLennan Physical Laboratories
- provides General Purpose Time-Sharing
- 512 K - 36 bit words of memory
- TOPS-10 operating system, version 7.01A
- GALAXY queuing, spooling, and batch subsystem, Version 4.1

PDP-11/70 SAS/DPS UNIX

- located in McLennan Physical Laboratories
- provides UNIX text processing & Statistical Analysis Service (Dept. of Statistics)
- 4 megabytes of memory
- typesetting hardware (CAT/8) and Varian for previewing typeset output
- UNIX Seventh Edition

VAX-11/750

- located in McLennan Physical Laboratories
- provides backup, program testing, and intercommunication relating to student services
- 3 megabytes of memory
- VMS

Computer Disciplines Facility

VAX-11/750 (2 megabytes of memory)
VAX-11/780 (4 megabytes of memory)

- located in Engineering Annex
- provide Computer Science interactive access
- UNIX (Berkeley Unix 4.2BSD)

Communications & Technical Support

- located in Sandford Fleming Building, Fourth Floor
- Communications Group provides communications systems, terminals, modems, data channels: consulting and installation.
- Field Service Group installs and maintains small computer systems on a contract basis or on a cost-per-call basis.
- provides consulting on minicomputers; configures and installs minicomputer systems

Microcomputer Facility

- located in McLennan Physical Laboratories
- provides consulting on microcomputer systems
- offers media conversion services
- Machines include:
  IBM Personal Computer, APPLE II Plus, TRS-80 Model 1, S-100 CP/M System, Osborne Micro, plus a variety of others on loan from suppppliers

Scarborough College Systems

VAX-11/750 (2 megabytes of memory)

- provides instructional access using UNIX

VAX-11/750 (5 megabytes of memory)

- provides instructional access using UNIX (Berkeley Unix 4.2BSD)

Erindale College Systems

VAX-11/780 (4 megabytes of memory)

- provides instructional access using VMS and UNIX
- Research access

VAX-11/750 (5 megabytes of memory)

- provides instructional access using UNIX (Berkeley Unix 4.2BSD)

UTCS Newsletter Subscription Request Form

If you wish to have your name and/or address added, changed or deleted from our Newsletter mailing list, please complete this form.

Please ______ add

______ change

______ delete my name and address.

NAME, ADDRESS and TELEPHONE, in full	PREVIOUS NAME and ADDRESS, in full (or include your old mailing label)
________________________________	________________________________
________________________________	________________________________
________________________________	________________________________
________________________________	________________________________

____ Check here if you can receive *COMPUTERNEWS* by campus mail.

Comments on this issue of *COMPUTERNEWS*

-- **FOLD HERE** ---------------------------------------

Return to:

COMPUTERNEWS
University of Toronto Computing Services
Room 207
11 King's College Road
Toronto, Ontario
M5S 1A1

Special Seminar on

"SUPERCOMPUTERS, PRESENT AND FUTURE"

by

Bob Robertson

Vice-President, Strategic Planning

ETA System, St. Paul, Minnesota

DATE : Thursday
June 21, 1984

TIME : 11:00 AM - 12:00 Noon

PLACE: Lecture Room 1101
Sandford Fleming Building
University of Toronto

This seminar is directed towards scientists, engineers and others who are interested in large scale computing. Large scale means up to 1000 X the power of any system presently at U. of T. This astonishing increase in computing capability will dramatically influence many fields of research in the future.

It has been claimed that: "Science is undergoing a structural transition from two broad methodologies to three - namely from experimental and theoretical science to include the additional category of computational and information science. A comparable example of such change occurred with the development of systematic experimental science at the time of Galileo".

UNIVERSITY OF TORONTO
COMPUTING SERVICES
TORONTO, CANADA
M5S 1A1

CAMPUS DELIVERY

University of Toronto Library
Serials Department
Toronto, Ontario
M5S 1A5
University of Toronto